

## Darlington Transistors with Built-in Zener Diode

We have developed the following Darlington transistor series containing a C-B Zener diode to provide protection against surge at the inductive load mode.

### Features

- ★ Stable Zener voltage because of precision diffusion process technology.
- ★ High surge handling capability and stable operation at the inductive load mode because of on-chip stable Zener diode connected across collector and base.
- ★ Capable of effectively providing protection against surge from L because high hFE lightens the burden imposed on the Zener diode.
- ★ Especially suited for switching use at the inductive load mode.

### Medium-Speed Type (Ta=25°C)

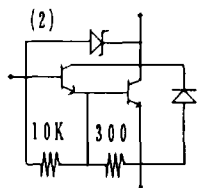
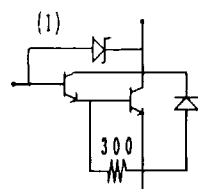
Pc※:Tc=25°C.

Type No.	V <sub>CBO</sub>	V <sub>CEO</sub>	I <sub>C</sub>	P <sub>C</sub>	h <sub>FE</sub>	V <sub>CE(sat)</sub>	*Es/b	Package	Equivalent Circuit
2SD1395	60 ± 10V	60 ± 10V	5A	※ 40W	3V, 2.5A 1000~	2.5A, 5mA max 1.5V	min 50mJ	TO-220	(3)
2SC4547	95 ± 10V	95 ± 10V	3A	※ 30W	3V, 1.5A 2000~	1.5V, 3mA max 1.5V	min 15mJ		(3)
2SD1838	60 ± 10V	60 ± 10V	5A	※ 25W	3V, 2.5A 1000~	2.5A, 5mA max 1.5V	min 50mJ	TO-220ML	(3)

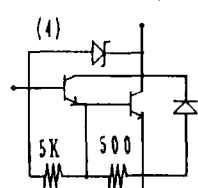
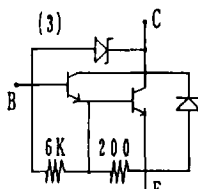
### High-Speed Type (Ta=25°C)

Pc☆:Mounted on ceramic board (250mm×0.8mm). Pc※:Tc=25°C.

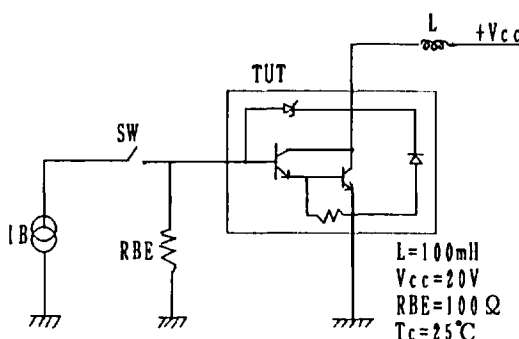
2SD2176	60 ± 10V	60 ± 10V	1.2A	☆ 1.3W	3V, 0.5A 1000~2000	0.5A, 1mA max 1.5V	min 15mJ	PCP	(4)
2SC4169	60 ± 10V	60 ± 10V	1.2A	1W	5V, 0.5A 1000~	0.5A, 2mA max 1.5V	min 50mJ	MP	(1)
2SC4671	60 ± 10V	60 ± 10V	2A	1W	5V, 1A 1000~	1A, 4mA max 1.5V	min 25mJ	NMP	(2)
2SC4696	90 ± 10V	90 ± 10V	0.8A	1W	3V, 0.5A 1000~	0.5A, 1mA max 1.5V	min 25mJ		(4)
2SC4737	60 ± 10V	60 ± 10V	2A	1.5W	5V, 1A 1000~	1A, 4mA max 1.5V	min 15mJ	FLP	(1)
2SC3705	60 ± 10V	60 ± 10V	1.2A	※ 10W	5V, 0.5A 1000~	0.5A, 2mA max 1.5V	min 15mJ	TO-126	(1)
2SC3784	60 ± 10V	60 ± 10V	1.2A	※ 20W	5V, 0.5A 1000~	0.5A, 2mA max 1.5V	min 15mJ	TO-126LP	(1)
2SC3785	60 ± 10V	60 ± 10V	2A	※ 20W	5V, 1A 1000~	1A, 4mA max 1.5V	min 25mJ		(2)
2SC3786	60 ± 10V	60 ± 10V	3A	※ 20W	5V, 1.5A 1000~	1.5A, 6mA max 1.5V	min 25mJ		(2)
2SC3293	60 ± 10V	60 ± 10V	2A	※ 20W	5V, 1A 1000~	1A, 4mA max 1.5V	min 25mJ	TO-220	(2)
2SC3986	60 ± 10V	60 ± 10V	2A	※ 15W	5V, 1A 1000~	1A, 4mA max 1.5V	min 25mJ	TO-220ML	(2)
2SC3987	60 ± 10V	60 ± 10V	3A	※ 20W	5V, 1.5A 1000~	1.5A, 6mA max 1.5V	min 30mJ		(2)
2SC4006	50 ± 8V	50 ± 8V	3A	※ 20W	5V, 1.5A 2000~	1.5A, 6mA max 1.5V	min 30mJ		(2)



Equivalent Circuit (NPN)



\* Es/b Test Circuit (Tc=25°C)



These specifications are subject to change without notice.